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OIT 0432-87

14 JUL 1987

MEMORANDUM FOR: Executive Director

VIA: Deputy Director for Administration

FROM: Edward J. Maloney
Director of Information Technology

SUBJECT: OIT Standard for Levels of Service

1. Attached is the OIT Standard for Levels of Service.

2. This Standard has been approved by the OIT Information Technology Management Board. It has been presented to the Customer/Standards Committee, and they unanimously recommend its adoption.

3. I have personally reviewed this Standard, and believe that its adoption will increase OIT's effectiveness by improving communication between OIT and our customers concerning the variety and quality of services that we offer. Therefore, I adopt it as an OIT Standard.

4. OIT is already largely in compliance with the provisions of this Standard except for the greatly improved times for the installation of telephone, terminal, and personal computer equipment. Plans to achieve these service improvements will be completed in October.

5. This Standard will be published in August 1987. Monthly reporting on OIT's performance against this standard to the Customer/Standards Committee will begin in August.

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Edward J. Maloney

Attachments:
As stated

DATA RECORDED
90-9

SUBJECT: OIT STANDARD FOR LEVELS OF SERVICE

STAT OIT/ATPS [] 7 July 87/pj (20008)

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**OIT Standard
Levels of Service**

1. Summary

1.1 This is the OIT standard for levels of service. Each service offered by OIT is defined, and its hours of operation and levels of performance and availability are stated.

1.2 The information covered by this Standard changes as new OIT services are offered, as customer requirements change, as new technologies are introduced into existing services, and as measurement techniques are refined. Updates to this Standard will be issued as required, at least semiannually, to reflect such changes.

1.3 OIT recognizes that current measurement and reporting techniques used to measure performance and availability of individual OIT systems are deficient in several respects. OIT is in the process of developing measurement and reporting procedures focused on the customer's composite view of the several computing and communications systems required to deliver a service.

2. Need for this Standard

2.1 In order to plan for the use of OIT systems and services in their work, OIT customers require information that not only identifies the services OIT provides, but also quantifies the quality of those services.

2.2 The availability and reliability of OIT systems and services are key criteria in assessing how well OIT achieves its mission of helping other Agency components succeed in their work.

2.3 Measurement of performance against stated standards for each service is the basis for OIT's planning with respect to equipment upgrade, changing priorities, adjusting resource allocations, and other actions.

3. Types of Services Offered

3.1 Computing Environments -- OIT operates and supports a number of IBM mainframe computer systems running both the VM/CMS operating system for interactive computing and the MVS/XA operating system for non-interactive computing and some terminal-based applications. These computer operating systems are used to provide two types of services:

3.1.1 End User Computing Services -- Computer systems operated by OIT include tools designed to expedite mainframe based computing by personnel who are not full-time data processing professionals. Examples of such tools include Waterloo SCRIPT and XEDIT for word processing, SAS for data analysis and graphics, and NOMAD2 for personal database management and report writing.

3.1.2 Application Development and Delivery Services -- OIT operated computer systems also provide tools designed for both the development of applications systems by data processing professionals and the operation of those systems. Examples are the SQL/DS, IDMS/R, and GIMS database management systems and various computer language compilers such as FORTRAN, COBOL and PL/I.

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3.2 Communications Services -- OIT is responsible for providing the domestic communications services for the Agency, including:

3.2.1 Data Communications Services -- OIT provides data communications services, as follows:

3.2.1.1 Data Communications among OIT Mainframe Computer Systems -- communication links are provided among OIT mainframe computer systems for the transmission of data between systems.

3.2.1.2 Data Communications with Terminals and Workstations -- communication facilities between OIT mainframe computer systems and customer-operated terminals and workstations are provided.

3.2.2 Cable Processing Services -- OIT is responsible for switching narrative and data cables for the communications networks and the distribution and delivery of narrative cables addressed to domestic recipients.

3.2.3 Voice Communications Services -- OIT is responsible for the installation, operation, and repair of domestic Agency voice communications systems, secure and non-secure.

3.3 Computer Applications Services -- OIT develops and supports a number of the applications operating in OIT computer centers including the AIM electronic mail system, administrative applications such as personnel and payroll, and intelligence applications.

3.4 Support Services -- OIT provides assistance in planning for and using the systems and services offered by the Office. Examples of these support services include logistical support, such as the PC Software Center, consulting services offered by Consulting Services Branch, and training by the Training and Information Branch.

4. Computing Environment Definitions and Standards .

4.1 Central Computer Operating System Services -- OIT provides access to the services of the VM/CMS and MVS/XA operating systems running on a number of IBM mainframe computer systems.

OIT strives to provide central computer system service 100% of the time, twenty-four hours a day, seven days a week. The technical constraints of operating the systems require service outages for system maintenance (both preventive and corrective) and system upgrades. In many cases OIT has configured multiple mainframes to provide a service, reducing the impact on service availability of removing a system from the complex.

For services delivered by multiple computer systems, a service outage occurs whenever an unscheduled outage of any of the systems occurs or whenever a scheduled outage leaves fewer systems in service than are necessary to meet the performance standards for that service during the period of the outage. Unless seventy-two hours notice has been given to customers, an outage is considered unscheduled.

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The standard for availability with respect to unscheduled service outages is 99%. An additional 4% allowance for scheduled service outages is made outside the hours of 6:00 a.m. through 8:00 p.m. on weekdays to provide time for maintenance and other operational requirements.

Measurements of service availability are currently made by manually logging system outages, and are from the perspective of the operators of the central site computers. OIT recognizes the inability of this recording technique to provide an appropriate end user perspective, and is developing new mainframe and personal computer based measurement techniques to collect availability and performance data for these services.

4.1.1 MVS/XA with JES3 is an IBM operating system (MVS/XA) and associated "Job Entry Subsystem" (JES3) used for batch processing and for support of systems that provide interactive access to sizable production databases.

Batch jobs are divided into three major classes: Class A (highest priority); Class C (same-day priority); and Debug (jobs of short duration). The standard for the elapsed time between job submission and the availability of the job's output (turnaround time) is two hours for classes A and C, and the standard for Debug is one-half hour.

4.1.2 VM/CMS is an IBM operating system used for general-purpose interactive computing services and the base for the Agency's electronic mail system.

Response time measurements reported by OIT are generated internally by the VM/CMS operating system. Trivial response time is the average elapsed time to complete the processing of a command which requires less than one time slice of central processor time. Minor command response time is, similarly, the time required to complete non-trivial commands which require less than eight time slices of central processor time to complete.

The performance standard for VM/CMS systems using current techniques is a trivial response time of three-tenths of a second and a minor response time standard of less than five seconds.

OIT recognizes the unsuitability of these performance measures and is currently developing techniques to measure the availability and response time of its terminal based systems using personal computers running scripts of commands and measuring response time and availability as seen by a simulated end user.

4.2 Database Management Systems Services -- OIT supports a number of Database Management Systems for the organization and storage of customer data.

The availability of these systems is evaluated by determining that both the underlying central computer operating system service is available and the database management system is operating. Availability is evaluated during both normal hours of operation and during such extended hours of operation as may be requested.

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Measurements of service availability are currently made by manually logging system outages, and are from the perspective of the operators of the central site computers. OIT recognizes the inability of this recording technique to provide an appropriate end user perspective, and is developing new mainframe and personal computer based measurement techniques to collect availability and performance data for these services.

4.2.1 SQL/DS is a relational database management system running under the VM/CMS operating system which implements the Agency's standard Structured Query Language (SQL) for data access. SQL/DS is currently available on a limited basis while OIT and its customers gain experience with it.

4.2.1.1 Normal hours of operation and availability have yet to be established due to the testbed nature of SQL/DS activity, although some SQL/DS-based applications have established standards.

4.2.1.2 Performance measurement techniques for SQL/DS are under development, so no standards have been established yet.

4.2.2 IDMS/R is a database management system used primarily for administrative applications, available in both the VM/CMS and MVS/XA environments.

4.2.2.1 Normal hours of operation are 6:00 a.m. to 8:00 p.m. weekdays, 5:30 a.m. to 4:00 p.m. Saturdays, and on request Sundays and holidays. Standards for system availability are the same as for the underlying operating system services: 99% from 6:00 a.m. to 8:00 p.m. weekdays and 95% (including the 4% allowance for scheduled outages) at all other times.

4.2.2.2 Performance measurement techniques for IDMS/R are under development, so no standards have been established yet.

4.2.3 GIMS-II is a database management system which operates in the MVS/XA environment and provides interactive access to primarily administrative applications.

4.2.3.1 Normal hours of operation in the Ruffing Computer Center are 6:00 a.m. to 8:00 p.m. Weekdays, 5:30 a.m. to 4:00 p.m. Saturdays, and on request Sundays and holidays. Standards for system availability are the same as for the underlying operating system services: 99% from 6:00 a.m. to 8:00 p.m. weekdays and 95% (including the 4% allowance for scheduled outages) at all other times.

4.2.3.2 System performance is measured through the use of performance monitoring features built in to GIMS-II. "Non-complex" response time is defined as the time needed to process a transaction that accesses fewer than thirty items; "complex" response time is the time needed to process a transaction that accesses more than thirty items. The performance standard for non-complex requests is two seconds. Since there is no upper bound on the amount of processing done by a complex transaction, no response time standard can be set for complex transactions.

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5. Communications System Service Definitions and Standards

5.1 Cable Distribution Services

5.1.1 The message switching and processing systems are available for cable processing twenty-four hours a day, seven days a week. The systems have reliable backup systems, and maintain availability near the standard of 100%.

5.1.2 Performance standards for the cable service are delivery times, defined as the interval between arrival of a cable in Headquarters and its availability for delivery to its intended recipients (or to the computer system that serves the recipient), as follows:

Critic	less than one minute
Flash	less than one minute
Immediate	less than five minutes
Priority	less than fifteen minutes
Routine	less than one hour

Direct measurement of performance against these standards is not feasible for the current family of cable processing systems. OIT is currently developing statistical sampling techniques which will enable reporting against these standards. As current generation systems are replaced direct measurement techniques will supplant statistical sampling methods.

Note that these delivery times are exclusive of any downstream processing that may take place in the receiving computer system. These application-specific performance standards will be specified in an addendum to this Standard as specified in paragraph 6.

5.2 Telephone, Terminal, and Workstation Installation, Reconfiguration, and Repair

5.2.1 Installation or relocation of telephone, computer terminal, and personal computer equipment will be initiated within ten working days of receipt of the request subject to equipment availability.

5.2.2 Reconfiguration of computer terminal and personal computer equipment that does not require new line assignment or relocation of existing data lines will be initiated within five working days of receipt of the request subject to equipment availability.

5.2.3 Repair of telephone, computer terminal, and personal computer equipment will be initiated within one working day of the receipt of the request.

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6. Computer Applications Definitions and Standards

6.1 Computer applications are built on a base of computer operating system and application delivery services, such as a combination of the SQL/DS database management system and the VM/CMS operating system.

6.2 Standards for the availability and performance of applications systems services offered by OIT will be found elsewhere.

7. Support Services Definitions and Standards

7.1 The Service Desk is a twenty-four hour point of contact that provides Customers with information and assistance on computers, telephone and telecommunications equipment. The Service Desk receives trouble reports and provides customers with system and hardware status information. The Service Desk is OIT's central point of contact for all services.

7.1.1 The Service Desk operates twenty-four hours a day, seven days a week.

7.1.2 The Service desk is staffed at all times by OIT personnel with sufficient knowledge to understand the questions being asked by customers, and to establish contact with the appropriate OIT personnel to deal with the problem.

7.2 Consulting Services Branch (CSB) provides consulting and assistance on mainframe and personal computer systems and software. CSB also provides demonstrations and tutorials on a variety of products, and maintains a Demonstration and Evaluation Room for customers to evaluate PC and graphics hardware prior to purchase.

7.2.1 CSB assistance is available from 7:00 a.m. through 5:00 p.m. daily, Monday through Friday. An Emergency Duty Officer is available for customer emergency assistance twenty-four hours daily through the OIT Service Desk.

7.2.2 For requests for assistance submitted through AIM, the standard is to acknowledge receipt of the problem report and assign a consultant to the problem within two hours. Within twenty-four hours there will be either a resolution of the problem or further status information.

7.3 The OIT Personal Computer Software Center (PCSC), provides Agency PC users with a central source for obtaining PC software and consulting services. The PCSC, which is part of the OIT Information Center, offers the following services to its customers: assistance in selecting, purchasing, installing, and using software; reduced prices and quick delivery of software; centralized software registration; and software update notification and purchase.

7.3.1 Logistics personnel are available to assist in processing orders for PC software, provide pricing and delivery information, and handle registration and update of PC software between the hours of 10:00 a.m. through 2:00 p.m. Monday through Friday.

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7.3.2 PC Software Center consulting services are available from 8:00 a.m. through 4:30 p.m. Monday through Friday.

7.4 The Training and Information Branch (T&IB) consists of three areas of service which are the Training Staff, Technical Library, and Publications Staff. They are located in

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7.4.1 The Training Staff of T&IB provides ADP professional training and publications. Normal hours of operation are 8:30 a.m. through 4:00 p.m.

7.4.2 The OIT Technical Library orders and distributes computer related documentation Agency wide to customers of OIT computing services. The Library also maintains a specialized library of computer related manuals and textbooks for loan (these are cataloged in the main Agency Library). The OIT Technical Library is open from 8:00 a.m. to 4:00 p.m. Monday through Friday.

7.4.3 The Publications Staff provides technical writing and editing services, and arranges for the production of reference manuals, user guides and periodic publications of interest to OIT customers such as Tech Notes and the IC Newsletter. Publications personnel are available to assist customers with documentation concerns from 8:30 a.m. to 5:00 p.m. Monday through Friday.

7.5 OIT's System Administration Branch (SAB) is responsible for managing access to OIT operated computer systems. They are the point of contact for obtaining user identification (USERIDs), managing user passwords, allocating and restoring of minidisks, and managing Automated Information Management (AIM) system access. SAB also manages the use of Access Control Facility (ACF2) software to control access to certain classes of computer system resources.

7.5.1 Normal hours of operation are from 7:00 a.m. through 7:00 p.m., Monday through Friday.

7.5.2 An Emergency Duty Officer is available for customer emergency assistance 24 hours daily through the OIT Service Desk.

7.6 The Operations Duty Officer (ODO) is a twenty-four hour, seven day per week service that provides OIT customers with a focal point for assistance with operational problems that have not been resolved through normal channels. The ODO serves as liaison between the customer and all OIT Service Managers to review ongoing operational problems and work through the appropriate Service Manager to resolve them. Additionally, the ODO represents the Director, OIT and serves as point of contact for the Office of Communications personnel throughout the world, after hours and on weekends and holidays.

7.6.1 OIT Operations Duty Officers are OIT officers who are experienced in OIT data and communications operations and can provide management level operations support to OIT customers as required at any time of the day or night, seven days a week.

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7.6.2 The ODO, as after hours representative of the D/OIT, is granted full authority to ensure that the needs of OIT customers are satisfied.

7.6.3 The ODO serves as the OIT point of contact during crisis situations that occur after normal duty hours. The ODO will coordinate with all OIT operations activities to ensure full availability of OIT data and communications services during such situations.

8. Applicability

8.1 This standard applies to OIT Central Computer System Services and System and Application Services accessed from any Agency buildings, including Headquarters, the planned Reston complex and other Agency buildings located outside the Headquarters compound.

9. Effective Date

9.1 This standard is effective immediately.

10. Implementation

10.1 OIT is responsible for monitoring its performance against these standards.

10.2 OIT is responsible for presenting monthly summaries of its performance in all areas covered by these standards to the Customer/Standards Committee.

10.3 Where existing measurement and reporting techniques fail to provide relevant input to OIT customers' planning, OIT will work with its customers to develop suitable techniques.

10.4 Plans for new systems and services will include provisions for not only the technical measures required by OIT to manage the system or service, but also the collection and reporting of information required for OIT customers' planning processes.

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